Remarks

Claims 1-16 and 18-20 are pending in the application and are presented for reconsideration. Claims 1, 3, 4, 12-16 and 17-20 have been amended. Claims 2 and 5-11 remain in the application unchanged.

Claims 1, 10 and 11 have been amended to recite "one update file in unprotected memory locations not protected by the write filter", "an update file is generated in the secondary memory location", and "wherein critical writes to the protected memory location are identified and described in at least one update file located in non-protected memory", respectively. Support for these amendments may be found in paragraph 27 of the Applicant's Specification. No new matter has been added.

Claim Objections

Claims 1-9, 15 and 19 are objected to because of the following informalities:

As per claim 1, the term "updated file" should be amended to --update file--.

As per claim 3, "stat" should be corrected to --state--.

As per claim 4, "thye" should be corrected to --the--, "emty" should be corrected to --empty--, "cach" should be corrected to --cache--, and "rebotting" should be corrected to --rebooting--.

As per claim 19, "onece" should be corrected to --once--.

Claims 1, 3, 4 and 19 have been amended to make the above corrections.

As per claims 14-16, claim 14 was inadvertently omitted in the previous amendment and the content of previous claims 14 and 15 were inadvertently shifted to claims 15 and 16. The claims have been amended to include Claim 14 herein, which now takes the limitations of previous claim 16 (Amendment of 2/10/2006), per the Examiner's adoption in the Office Action of 9/29/2006. Claims 15 and 16 are numbered as amended in the Amendment dated 7/21/2006. The objections of Claims 14-16 are now believed to be overcome.

7

Claim Rejections

Claims 11-16 and 18-20 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 3, 5, 6, 8, 10-13, 15, 16, and 18-20 are rejected under 35 U.S.C. § 102(e) as being unpatentable over Page (U.S. Pat. No. 6,523,103).

Claims 1, 3, 5, 6, 8, 10-13, 15, 16, and 18-20 are rejected under 35 U.S.C. § 102(a) as being unpatentable over Page (U.S. Pat. No. 6,523,103).

Claim 2 is rejected under 35 U.S.C. § 103(a) as unpatentable over Page (US Pat. No. 6,523,103) as applied to claims 1, 3, 5, 6, 8, 10-13, 15, 16, and 18-20, in view of Ryan (U.S. Pat. App. Pub. No. 2003/0084194).

Claim 7 is rejected under 35 U.S.C. § 103(a) as unpatentable over Page (US Pat. No. 6,523,103) as applied to claims 1, 3, 5, 6, 8, 10-13, 15, 16, and 18-20, in view of Xian (U.S. Pat. No. 6,327,584).

The Examiner's rejections of the claims are respectfully traversed.

Response to Rejections of Claims Under 35 U.S.C. § 112, Second Paragraph

Claim 11 recites:

An embedded system, comprising a state machine that in conjunction with booting assumes one of two states, the two states comprising:

a normal state wherein applications are executed, wherein a write filter intercepts writes to a protected memory location and redirects them to a non-protected memory location, wherein the writes to the protected memory location are not applied to the protected memory location during the normal state, wherein critical writes to the protected memory location are identified and described in at least one update file located in non-protected memory; and

a change state, entered across a boot from the normal state, in which respective writes applied to the write filter during the normal state are re-applied to the write filter and subsequently persisted to the respective protected memory locations, and wherein the critical writes described in the at least one update file are persisted to the protected memory.

8

Claims 11-16 and 18-20 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per Claim 11, previous Claim 11 did not include a transitional phrase. Claim 11 has been amended to include the transitional phrase "comprising".

As per Claim 11, the term "the last normal state" is unclear. Claim 11 has been amended to remove the term "the last normal state".

As per Claim 11, the claim is incomplete for omitting essential elements, including a second state. Claim 11 has been amended to include a second state - namely, "a change state".

Claim 11 has also been amended to include the novel limitations involving the identification of "critical writes" and describing the critical writes in "at least one update file located in non-protected memory".

The Applicant respectfully submits that the 35 U.S.C. § 112, second paragraph rejections of Claims 11-16 and 18-20 are overcome by the amendments made herein to Claim 11.

Response to Rejections of Claims Under 35 U.S.C. § 102/103

a. *Claims 1-9*

Applicant's Claim 1 recites:

> A method of protecting memory locations associated with an embedded system, the method comprising:
> starting a write filter that intercepts writes to the protected memory locations and stores the writes in a cache;
> starting a state machine with at least a change state and a normal state;
> upon starting the state machine, entering the change state when an indication is present that data needs to be persisted to the protected memory locations, otherwise entering the normal state;
> in the normal state, identifying requests for critical writes to the protected memory locations and creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes, wherein the critical writes are not persisted to the protected memory locations during the normal state; and

US Patent Application Serial No. 10/830,031
Docket No. 10030673-1

9

in the change state, applying the critical writes described in the at least one update file and rebooting the system in a manner that persists the critical writes to the protected memory locations.

The Page Reference

The Examiner cites Page as disclosing "starting a write filter that intercepts writes to the protected memory locations and stores the writes in a cache" (Page's RAM 200). The Examiner also cites Page as disclosing "in the normal state identifying requests for critical writes to the protected memory locations and creating at least one update file describing the critical writes" (seeking to equate the collection of the update data in Page's RAM 200 that is stored in persistent memory).

Applicant's recited Claim 1 explicitly differentiates between the stored "writes in a cache" and "at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes". Importantly, while any type of write to protected memory is intercepted by the write filter and written to the cache, both in Page and in the Applicant's recited Claim 1, only Applicant's recited Claim 1 requires "identifying requests for critical writes to the protected memory locations and creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes".

A write to protected memory that is protected by a write filter, as described in Page, is distinguishable from a *critical* write to be persisted to protected memory that is claimed in Applicant's Claim 1. As described in the Specification, paragraph 6, with the write filter enabled, corruption of protected memory may be prevented. However, when the protected memory contains the operating system, it is necessary to allow some critical writes to be persisted to the protected memory. One example of a critical write is the changing of the computer's IP address. Further as explained in the Specification at paragraph 27, once a request for a critical write has been identified, the write is sent to the write filter for processing. This typically involves the creation of an entry in the write cache, as normal, but then is *also followed* by the *creation of an update file*

US Patent Application Serial No. 10/630,031
Docket No. 10030673-1

10

on a non-write filtered partition. As explained in the Specification in paragraph 27, an update file stores the requested write for use In the change state. Among other benefits, the use of a file separate from the normal write cache facilitates the independent of critical writes versus writes that don not need to be persisted.

Page does not disclose the identification of any "critical write", nor does Page describe "creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes". Accordingly, Page does not teach or suggest "in the normal state identifying requests for critical writes to the protected memory locations and creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes".

The Ryan Reference

Ryan does not make up for the deficiencies of Page in meeting Applicant's Claim 1. Ryan discloses an apparatus and method for partitioning and downloading executable memory images in low-powered computing devices comprised of multiple processors and a mobile station modem. Ryan teaches nothing about " identifying requests for critical writes to the protected memory locations and creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes" as recited in Applicant's Claim 1. ·

Xian also does not make up for the deficiencies of Page in meeting Applicant's Claim 1. Xian discloses a method for dynamically updating at least one outdated file that is available for access, comprising creating at least one temporary file, where the at least one temporary file corresponds to the at least one outdated file; writing updated information received from an information source to the at least one temporary file through an atomic operation to create at least one updated file, where the at least one updated file corresponds to the at least one outdated file, and is an updated version of the outdated file; creating a second version I.D.; and assigning the second version I.D. to the at least one updated file, where the second version identifies the at least one updated file as the updated version of the outdated file. Xian teaches nothing about " identifying

requests for critical writes to the protected memory locations and creating at least one update file in unprotected memory locations not protected by the write filter which describe the critical writes" as recited in Applicant's Claim 1. Xian teaches neither "critical writes" nor "protected memory":

In view of the above, none of Page, Ryan, Xian, nor any of the other references of record, taken either alone or in any combination, meets each and every limitation of Applicant's Claim 1. Accordingly, Page cannot be used to formulate a 35 U.S.C. § 102 rejection. In addition, Page, Ryan, and/or Xian also cannot even be combined to formulate an obvious-type rejection under 35 U.S.C. § 103. Accordingly, Applicant respectfully submits that the 35 U.S.C. § 102 rejections of Claim 1 should be withdrawn and that Claim 1 is now in position for allowance.

Claims 2-9 each depend from independent base Claim 1 and add further limitations. For at least the same reasons that Claim 1 is not shown, taught, or disclosed by the cited references, Claims 2-9 are likewise not shown, taught, or disclosed. Thus, Applicant respectfully submits that the rejection of Claims 2-9 should be withdrawn.

b. Claim 10

Claim 10 recites similar limitations to claim 1, including "during operation in the normal state, the applications are run and when a critical write to the operating system is requested, *the critical write is not persisted to the operating system but an update file is generated to store the critical write until the embedded system enters the change state*". For at least the same reasons that Claim 1 is not shown, taught, or disclosed by the cited references, Claim 10 is likewise not shown, taught, or disclosed. Thus, Applicant respectfully submits that the rejection of Claim 10 should be withdrawn.

c. Claims 11-20

Claim 11 recites similar limitations to claim 1, including "wherein critical writes to the protected memory location are identified and described in at least

US Patent Application Serial No. 10/630,031
Docket No. 10030673-1

12

one update file located in non-protected memory" and "wherein the critical writes described in the at least one update file are persisted to the protected memory". For at least the same reasons that Claim 1 is not shown, taught, or disclosed by the cited references, Claim 11 is likewise not shown, taught, or disclosed. Thus, Applicant respectfully submits that the rejection of Claim 11 should be withdrawn.

Claims 12-20 each depend from independent base Claim 11 and add further limitations. For at least the same reasons that Claim 11 is not shown, taught, or disclosed by the cited references, Claims 12-20 are likewise not shown, taught, or disclosed. Thus, Applicant respectfully submits that the rejection of Claims 12-20 should be withdrawn.

US Patent Application Serial No. 10/630,031
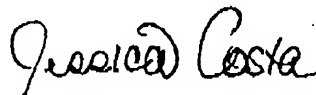Docket No. 10030673-1

13

Conclusion

In view of the foregoing remarks, it is respectfully submitted that none of the references cited by the Examiner taken alone or in any combination shows, teaches, or discloses the claimed invention, and that Claims 1-16 and 18-20 are in condition for allowance. Reexamination and reconsideration are respectfully requested.

Should the Examiner have any questions regarding this amendment, or should the Examiner believe that it would further prosecution of this application, the Examiner is invited to call the undersigned.

Respectfully submitted,

December 26, 2006

Jessica Costa, Reg. No. 41,065

The Law Offices of Jessica Costa, PC
P.O. Box 460 Crozet, VA
22932-0460
(434) 823-2232
(434) 823-2242 (fax)

US Patent Application Serial No. 10/630,031
Docket No. 10030673-1

14

PAGE 15/15 * RCVD AT 12/26/2006 12:15:34 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:4348232242 * DURATION (mm-ss):02-44